

**2008 Meeting  
Geneva, 1-5 December 2008**

**Meeting of Experts  
Geneva, 18-22 August 2008**  
Item 6 of the provisional agenda  
**Consideration of oversight, education,  
awareness raising, and adoption and/or  
development of codes of conduct with the  
aim of preventing misuse in the context  
of advances in bio-science and bio-technology  
research with the potential of use for  
purposes prohibited by the Convention**

**OVERSIGHT, EDUCATION AND AWARENESS RAISING:  
REPORT OF A UK SEMINAR, 28 MARCH 2008**

Submitted by the United Kingdom of Great Britain and Northern Ireland

**Introduction**

1. During the 2005 Meeting of Experts, the UK presented a series of papers on codes of conduct for scientists, which covered issues relating to the content, promulgation and adoption of codes of conduct; provided examples of codes and associated activities related to Government science; and reported observations from UK seminars on codes of conduct. A UK paper submitted to the Sixth Review Conference in 2006 reported the key points from a further UK seminar on the topic. These papers highlighted the importance of raising awareness of the BTWC, and of the potential for misuse of advances in science for purposes prohibited by the Convention, through education and continuing programmes.
2. The US National Research Council's 2003 report *Biotechnology Research in the Age of Terrorism* noted that biotechnology research is dual-use and has the capacity "to cause disruption or harm, potentially on a catastrophic scale." The UK's report on scientific and technological developments relevant to the Convention submitted to the Sixth Review Conference observed that "the wider dissemination of knowledge and skills in dual-use scientific applications increases the global potential for their misuse in biological weapons by State or non-State actors." The Royal Society also addressed these issues in its contribution to the Sixth Review Conference. Scientific and technological developments bring enormous benefits for humanity

and it is essential that we do not lose sight of this extremely important reality. In our work to strengthen the Convention we have therefore to balance two ostensibly competing objectives: minimising the risks of deliberate or inadvertent misuse whilst keeping controls and regulations on legitimate research and development to the minimum necessary. This is where oversight, education, awareness raising and codes of conduct have a role to play.

## UK Seminars

3. Since 2003 the UK has held five BTWC related seminars for academics, research councils, professional and trade organisations, and the pharmaceutical and biotechnology industries, all of which have been reported in Working Papers at BTWC Meetings of Experts. These seminars have assisted the UK's preparations for the intersessional meetings on codes of conduct issues by ensuring that we had, and continue to have, a clear sense of the views of relevant stakeholders as well as their advice. Our most recent event took place in March 2008 and was devoted primarily to oversight, education and awareness raising. While previous seminars largely focussed on the theory and general principles, the March seminar concentrated on the practicalities.

4. The seminars were to address several key questions:

- (i) What are the emerging lessons from work on elaborating codes of conduct and practice?
- (ii) What are the problems that have been encountered during the promulgation and implementation of codes of conduct? What are the solutions?
- (iii) How can we develop effective and practical oversight mechanisms for research?
- (iv) How can we develop educational programmes? There have been many statements calling for such programmes, but specifics on what that education should cover are often absent.

This paper highlights some of the key points that emerged during the seminar and how they might relate to efforts to enhance and sustain awareness of the Convention and its prohibitions.

## Seminar themes

5. The seminar addressed five main topics through which we sought to address oversight, education, awareness raising and adoption and/or development of codes of conduct. The topics were: lessons from history; current activities in academia and industry; government initiatives; international aspects; and lessons from IUPAC<sup>1</sup>/OPCW work on educational aspects that might be relevant for the BTWC.

6. The main points that emerged during the seminar can be grouped under the following headings:

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<sup>1</sup> International Union of Pure and Applied Chemistry.

- (i) Lessons from history
  - (a) Codes can be ineffective if they are not supported and developed by the profession to whom they apply.
  - (b) The formulation of codes is often reactive rather than proactive; they are introduced in response to adverse events. They can often be seen as related to legal liability concerns and an attempt to avoid future embarrassments by demonstrating that some sort of ethical code or standards are in place.
  - (c) Generational differences can also be a factor: codes developed by one generation may no longer be seen by a younger generation of scientists as appropriate or relevant for contemporary needs or perceived requirements.
  - (d) Scientists and physicians can convince themselves that ethical standards no longer apply to their work and that what they are doing is in fact for the common good. If there are no internationally recognised or uniformly applied standards, then this becomes much easier.
- (ii) Oversight issues
  - (a) Ensuring that life science research is compliant with the BTWC needs to be seen as a collective responsibility including funding bodies, researchers, institutions and publishers.
  - (b) Whilst there is a clear need for self-governance by the scientific community in the area of dual-use research, there is perceived to be little guidance available on ensuring compliance. Efforts at outreach and promotion of self-governance on dual-use research have in some cases been extensive, but it is difficult to judge their effectiveness. Most scientists tend to be much more interested in science than science policy. Some surveys have shown dwindling interests in biosecurity issues and very little awareness of the BTWC or regard for its importance.
  - (c) Not everyone shares the same set of priorities. Some scientists do not see improved biosecurity as being directly relevant to their needs or concerns, or that the risks of misuse of dual-use knowledge are that acute. There may also be differing priorities in different geographical regions. These issues may appear to be more of a preoccupation of international security and arms control experts.
  - (d) Clear mechanisms are required for reporting deliberate or inadvertent misuse or misconduct in scientific research; people must have confidence that such systems work and that whistle-blowing (reporting of genuine concerns about misuse/abuses) will be without retribution. Clear and workable grievance procedures are also required.
  - (e) Research grant/funding application forms for scientific research increasingly require consideration of ethical issues, but these do not appear to make express reference to BTWC considerations.

- (f) The UK Ministry of Defence has developed procedures to ensure that its biological defence research and development programmes are in compliance with the BTWC. Compliance issues are reviewed by the research customer and research community at all stages from project conception to dissemination of results, in consultation with relevant legal, technical and policy experts as necessary. Guidelines will be formally adopted before the end of this year. These set out the procedures and responsibilities within the MoD for ensuring that research is consistent with our obligations under the Convention and with relevant domestic law, and codify existing approaches and practices.

(iii) Educational aspects

- (a) Compulsory courses on ethics and the philosophy of ethics in scientific research have been adopted in some universities. It is important to explain how these relate to other guidelines and regulations, on health and safety for instance; and it is important too to consider interdisciplinary approaches to ethical issues (i.e. involving students from different courses in joint discussions). Discussions of issues such as dual-use, the CWC and the BTWC in an educational setting should include both scientists and ethicists for a much more rounded and informed debate where all angles can be fully addressed.
- (b) Consideration should be given to secondary school education as well as undergraduate and postgraduate teaching. Work done by IUPAC/OPCW on preparing educational materials on the CWC and its prohibitions could serve as a model for comparable work in the BTWC. The IUPAC/OPCW material is aimed at secondary schools.<sup>2</sup> Case studies developed in the CWC context to illustrate key teaching points are much easier to devise than BTWC case studies.
- (c) Accessible materials which address the BTWC and dual-use issues are needed for teachers; such materials should be scrutinised for ethical content to check that case studies are appropriate and do not provide information that could be misused, such as instructions on how to make toxic materials. There are already teaching resource materials on physics available on the internet provided by the University of Bristol; this could serve as a model for both chemistry and biology.<sup>3</sup>
- (d) Training for personnel on ethical issues – not just in secondary and tertiary education - should be on-going and not limited to a single component in a degree course; however, this must be squared with competing pressure to concentrate on what are seen as core subjects. Such training needs to include BTWC issues.

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<sup>2</sup> <http://www.iupac.org/web/ins/2005-029-1-050>.

<sup>3</sup> <http://www.phy.bris.ac.uk/groups/particle/PublicInfo/>.

- (iv) Codes of conduct/practice development and promulgation: problems and solutions
  - (a) Institutions working in the life sciences often already have extensive codes of practice and guidance on ethical issues, but rarely do these make any express reference to BTWC prohibitions. They could be amended or adapted to do so.
  - (b) There can be problems in devising and implementing meaningful codes in multidisciplinary environments where there is a diverse range of scientific and engineering research activity. Development of new codes, or guidance within institutions working in the life sciences, should involve all stakeholders, including ethicists and philosophers of science as well as scientists.
  - (c) One model would see expert groups formed to elaborate text; extensive consultations would follow prior to formal approval; clear communication strategies would cascade information to all those affected. A clear implementation plan would also be required. Details should be available on institutions' websites.
  - (d) Although many felt that codes were best developed from the “**bottom up**”, rather than “*top down*”, this did not mean that senior managers and academics should not actively encourage and promote them. Unless this support exists it is difficult for more junior staff members to make such systems effective in practice.
  - (e) A process of promulgation of codes, oversight and awareness raising should generate a whole series of activities to be implemented at different levels. Funding of initiatives and their implementation is also a key consideration and is often overlooked.
  - (f) Even requiring all members of staff to sign codes is no guarantee that they will be adhered to – there needs to be clear leadership from senior personnel across organisations that such things are not only seen to be important, but put into practice. Employers have a clear responsibility here; there needs to be commitment and a sustained vision. However, individuals have a personal responsibility to act ethically. There needs to be a shared value system.
- (v) International aspects
  - (a) Different cultures may, and do, approach issues from their own particular perspectives; this is an important consideration when institutions operating at a global level are seeking to develop codes and guidelines that would apply at all of their facilities.
  - (b) One problem in developing a detailed code or set of principles on biosecurity/ BTWC matters to apply or be agreed internationally is that it might end up being too broad and bland. Perhaps a better approach is to provide some general overarching principles on awareness, safety and security, education and information, accountability and oversight and leave it to national bodies and individual institutions to take it forward in their own particular scientific areas.

In 2004, the Inter Academy Panel (IAP) appointed a working group on biosecurity. This group was asked to develop a statement of principles that could guide IAP member academies and other scientific bodies in developing appropriate biosecurity codes of conduct. The statement, endorsed by 68 member academies, was released on 1 December 2005<sup>4</sup>.

## Conclusion

7. The UK recognises that codes of conduct for scientists and awareness raising campaigns do not offer a foolproof defence against the misuse of the life sciences for hostile purposes. But what they can do - along with measures on oversight and education - is to heighten the levels of awareness in the academic and research communities of the need for care; highlight the nature of the Convention's legal prohibitions; and promote the need to address issues such as technology governance on a continuing basis. Such issues cannot be dealt with quickly; sustained efforts by a broad range of stakeholders are required over an indefinite period of time.

8. Measures taken in this context should not be seen in isolation: improved biosafety and biosecurity in laboratories, enhanced disease surveillance, effective national implementation of the Convention, improved investigative mechanisms for cases of alleged use and practical oversight of dual-use R&D all have a role to play in strengthening the BTWC. The UK believes that progress is required in all these areas, since they are mutually reinforcing.

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<sup>4</sup> <http://www.interacademies.net/CMS/Programmes/4702.aspx>.